### **ENVIRONMENTAL CHEMISTS**

Date of Report: February 26, 1996 Date Received: February 20, 1996 Project: Holnam Testing, PO #M52343

Date Samples Extracted: February 20 and 21, 1996

Date Extracts Analyzed: February 23, 1996

### RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TCLP METALS IN ACCORDANCE WITH 40 CFR PART 261

### Results Reported as mg/L (ppm)

Sample ID	<u>M52343 A</u> (3317)	<u>M52343 B</u> (3350)	<u>M52343 C</u> (3317 Plasma)	TCLP Limit
Analyte:				
Arsenic	<0.5	<0.5	<0.5	5.0
Barium	2		<1	100
Cadmium	<0.1	<0.1	<0.1	1.0
Chromium	4.5	0.5	3.4	5.0
Lead	<0.5	<0.5	<0.5	5.0
Selenium	<0.5	<0.5	<0.5	1.0
Silver	<0.5	< 0.5	< 0.5	5.0

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# RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TCLP METALS IN ACCORDANCE WITH 40 CFR PART 261 Results Reported as mg/L (ppm)

Sample ID	<u>M52343 D</u> (80)	<u>Method Blank</u>	TCLP Limit
Analyte:			
Arsenic	<0.5	<0.5	5.0
Barium	<1	<1	100
Cadmium	<0.1	<0.1	1.0
Chromium	<0.5	<0.5	5.0
Lead	1.7	<0.5	5.0
Selenium	<0.5	<0.5	1.0
Silver	<0.5	<0.5	5.0

### **ENVIRONMENTAL CHEMISTS**

Date of Report: February 26, 1996 Date Received: February 20, 1996 Project: Holnam Testing, PO #M52343

# QUALITY ASSURANCE RESULTS FOR TCLP METALS IN ACCORDANCE WITH 40 CFR PART 261

Results Reported as mg/L (ppm)

Laboratory Code: 66660 (Duplicate)

하는 마음에 가는 하는 하나야기 요?			Relative	
Reporting	Sample	Duplicate	Percent	Acceptance
Analyte: Units	Result	Result	Difference	Criteria
			Laikitan 1960 a	
Arsenic mg/L (ppm)	< 0.5	< 0.5	nm	0-20
Barium mg/L (ppm)	<1	<1	nm	0-20
Cadmium mg/L (ppm)	< 0.1	< 0.1	nm	0-20
Chromium mg/L (ppm)	< 0.5	< 0.5	nm	0-20
Lead mg/L (ppm)	1.7	1.7	0	0-20
Selenium mg/L (ppm)	< 0.5	< 0.5	nm	0-20
Silver mg/L (ppm)	< 0.5	< 0.5	nm	0-20

Laboratory Code: 666660MS/MSD

						Relative
Reporting	Spike	Sample	% Rec	covery	Acceptanc	e Percent
Analyte: Units	Level	Result	MS	MSD	Criteria	<u>Difference</u>
Bradin Alii Alan A						
Arsenic mg/L (ppm)	10	< 0.5	99	100	50-150	1
Barium mg/L (ppm)	5	<1	97	92	50-150	5
Cadmium mg/L (ppm)	5	< 0.1	101	101	50-150	0
Chromium mg/L (ppm)	5	< 0.5	99	99	50-150	0
Lead mg/L (ppm)	10	1.7	101	102	50-150	1
Selenium mg/L (ppm)	10	< 0.5	119	118	50-150	1
Silver mg/L (ppm)	2	< 0.5	78	78	50-150	0

Laboratory Code: Spike Blank

	Reporting	Spike	% 1	Recovery	Acceptane	Relative e Percent
Analyte:	Units	Level	MS	MSD	Criteria	
Arsenic	ma/L (num)	10	102	97	80-120	<b>.</b>
Barium	mg/L (ppm) mg/L (ppm)	10 5	102	101	80-120	4
Cadmium	mg/L (ppm)	5	104	95	80-120	9
Chromium	mg/L (ppm)	5	103	97	80-120	6
Lead	mg/L (ppm)	10	105	98	80-120	7
Selenium Silver	mg/L (ppm) mg/L (ppm)	$\frac{10}{2}$	98 84	97 77	80-120 80-120	9
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nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

### **ENVIRONMENTAL CHEMISTS**

Date of Report: February 26, 1996 Date Received: February 20, 1996 Project: Holnam Testing, PO #M52343

Date Samples Extracted: February 20 and 21, 1996

Date Extracts Analyzed: February 23, 1996

## RESULTS FROM THE ANALYSIS OF TCLP EXTRACT SAMPLES FOR TOTAL MERCURY BY COLD VAPOR

Results Reported as mg/L (ppm)

Sample ID	Mercury
M52343 A (3317)	< 0.002
M52343 B (3350)	< 0.002
M52343 C (3317 Plasma)	<0.002
M52343 D (80)	< 0.002
Method Blank	< 0.002

### **ENVIRONMENTAL CHEMISTS**

Date of Report: February 26, 1996 Date Received: February 20, 1996 Project: Holnam Testing, PO #M52343

### QUALITY ASSURANCE RESULTS FOR TOTAL MERCURY BY COLD VAPOR

Laboratory Code: 66660 (Duplicate)

Analyte:	Reporting Units	Sample Result	Duplicate Result	Relative Percent Difference	Acceptance Criteria
Mercury	(ppm)	<0.002	<0.002	nm	0-20

Laboratory Code: 66660 DP

	Reporting	Spike	Sample	% Recovery	Acceptance	Relative Percent
Analyte:	Units	Level	Result		Criteria	Difference
Mercury	(ppm)	0.003	< 0.002	75 71	50-150	5

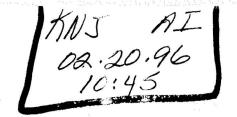
Laboratory Code: Spike Blank

Analyte:	Reporting Units	Spike Level	Sample % Recovery Result MS		Acceptance Criteria	
Mercury	(ppm)	0.003	< 0.002	93	80-120	

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

3012 16th Avenue West Seattle, WA 98119 (206) 285-8282

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### **ENVIRONMENTAL CHEMISTS**

Andrew John Friedman James E. Bruya, Ph.D. (206) 285-8282 3012 16th Avenue West Seattle, WA 98119-2029 FAX: (206) 283-5044

February 26, 1996

### INVOICE # 96ACU0226-1 DUPLICATE COPY

Accounts Payable Alaskan Copper Works 628 South Hanford Seattle, WA 98134

RE: Project Holnam Testing, PO #M52343: Results of testing requested by Gerry Thompson, Project Manager for material submitted on February 20, 1996.

#### **ENVIRONMENTAL CHEMISTS**

Andrew John Friedman James E. Bruya, Ph.D. (206) 285-8282 3012 16th Avenue West Seattle, WA 98119-2029 FAX: (206) 283-5044

February 26, 1996

Gerry Thompson, Project Manager Alaskan Copper Works 628 South Hanford Seattle, WA 98134

Dear Mr. Thompson:

Enclosed are the results from the testing of material submitted on February 20, 1996 from your Holnam Testing, PO #M52343 project.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Kurt Johnson

Chemist

keh

Enclosures ACU0226R.DOC